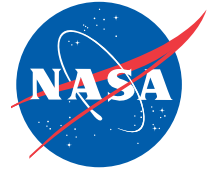




National Aeronautics and Space Administration



NASA's Impact in Montana: A Tech Transfer Perspective

You know that NASA studies our planet, our sun, the solar system, and the Universe.
But did you know about the space program's economic impact here on Earth?



In 2011, NASA invested over **\$10 million** in the state of Montana.

Since 2001, NASA's SBIR/STTR Program has invested nearly
\$17 million in **11 Montana companies**
and more than **\$1.2 billion** nationwide.

How NASA's SBIR/STTR Program Benefits Montana

NASA is committed to moving technologies and innovations into the mainstream of the U.S. economy, and the Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) program helps fulfill this goal.

SBIR/STTR stimulates technological innovation by encouraging small, high-tech companies—particularly minority and disadvantaged businesses—to partner with NASA to help meet its research and development needs in key technology areas. At the same time, this program strengthens small companies by enabling them to bring cutting-edge new products into the U.S. economy.

The list to the right highlights Montana businesses that received SBIR/STTR contracts from NASA since 2001. (Visit <http://sbir.nasa.gov> for more information on the SBIR/STTR program.)

NASA SBIR/STTR Companies in Montana

AdvR, Inc.	Bozeman
Anasphere, Inc.	Bozeman
Bridger Photonics, Inc.	Bozeman
HyPerspectives, Inc.	Bozeman
Montana Microbiological Services, LLC.....	Bozeman
Positive Systems, Inc.	Whitefish
Resodyn Corporation	Butte
S&K Aerospace, LLC	St. Ignatius
S&K Technologies, Inc.	St. Ignatius
Scientific Materials Corporation.....	Bozeman
Visual Learning Systems, Inc.	Missoula



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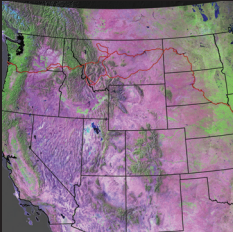


How NASA Spinoffs Benefit Montana



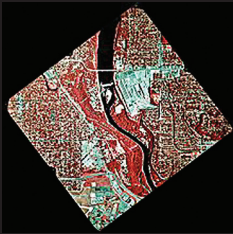
Optical Wave Guide Converts and Formats Light for Accurate Measurements (Bozeman)

Using an SBIR contract, NASA and AdvR, Inc. developed a compact, lightweight optical wave guide circuit. About the size of a matchbox, the device converts and formats infrared light to a precise wavelength in the visible spectrum for measurement-taking. This circuit was integrated into NASA's High Spectral Resolution Lidar (HSRL) system where it helps satellites measure cloud and aerosol properties for climate and air quality studies. AdvR foresees additional uses for this technology in the biomedical and laser-based television markets.



Lewis and Clark Geosystem Explores Landscape Changes (Missoula)

Through a unique collaboration with government agencies, academia, and private industry, GCS Research, LLC developed the Lewis and Clark Geosystem that combines the modern landscape with historical aerial and cartographic data. Intended for educational and research purposes, this Web-based system enables users to explore historical change via an interactive map. Users superimpose or hide layers to view perspectives of trail landscapes. This technology demonstrates NASA's ability to combine its rich geospatial archives in a distributed system that represents the past, present, and future of human exploration.



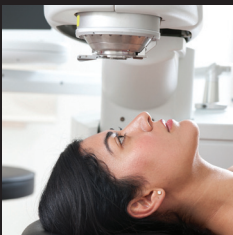
Software Enables Non-Programmers to Use Satellite Images (Missoula)

With an SBIR contract and the help of the Montana State University TechLink Center, Visual Learning Systems, Inc. (VLS) developed a product that enables non-programmers to isolate geospatial features from satellite images. The VLS software (now available from Overwatch Systems, Ltd.) extracts data from a satellite image five times faster than a standard extraction system. Applications include mapping fires, identifying border trails, tracking hazards, and monitoring wetlands.



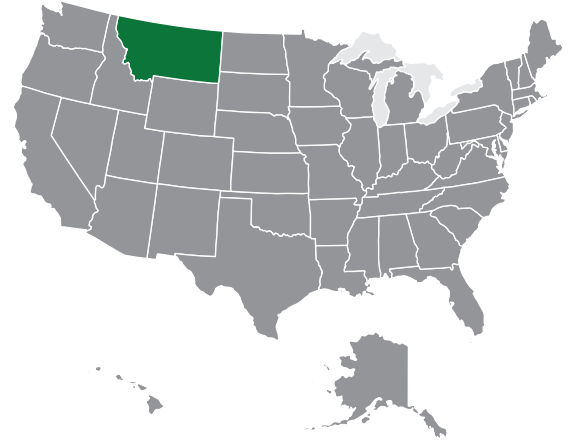
Out of the Lab. . . Into the Real World (Bozeman)

Big Sky Laser Technologies, Inc., now Quantel USA, develops small, rugged commercial and developmental laser systems. The Montana State University TechLink Center helped the company obtain a non-exclusive license for a NASA technology that eliminates premature light leaks from the laser cavity. With laser heads up to 90% smaller and 75% lighter than others, this company's hermetically sealed laser systems are portable and can be used in the field. Future applications include light detection radar, remote sensing, eye-safe illumination, ablation, and marking.



Analyzer Improves Laser Efficiency and Optical Quality (Bozeman)

Scientific Materials Corporation, now a FLIR Systems Company, produces laser crystals for fiber optics, telecommunications, welding, drilling, and eye surgery. Under an SBIR contract, the company improved its neodymium yttrium aluminum garnet (Nd:YAG) crystal process to produce uniform laser rods, reduce the water trapped in the crystal during growth, and improve laser efficiency and optical quality. This method allows laser engineers to custom design laser crystal so that a laser's performance can be more precise.



NASA actively seeks partnerships with U.S. companies that can license NASA innovations and create "spinoffs" in areas such as health and medicine, consumer goods, transportation, renewable energy, and manufacturing. When businesses leverage NASA technologies to develop new products, it not only benefits the regional economy, but significantly strengthens the nation's competitiveness in the global marketplace.

NASA's centers across the country have helped 7 Montana companies develop revolutionary spinoff technologies.

Learn more about how NASA innovations benefit the public in *Spinoff*, an annual publication that highlights NASA's most significant technology transfer successes. (Available at: <http://www.sti.nasa.gov/tto>)

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Publication herein does not constitute NASA endorsement of the product or process, nor confirmation of manufacturer's performance claims related to any particular spinoff development.

